

Having thus described the invention, what is claimed is:

1. A linear aeration apparatus comprising:

 a frame adapted for movement over the surface of the ground along a direction of travel;

 a rotary trench-forming member rotatably supported in said frame transverse to said direction of travel, said rotary member having a plurality of blades mounted on the periphery thereof, said blades being arranged on transversely spaced stations to form an aeration trench upon rotation of said rotary member and to discharge soil extracted from the ground to form said aeration trenches rearwardly of said rotary member;

 a presser finger assembly having a plurality of presser fingers arranged in alignment with said blades such that said blades pass between said presser fingers upon rotation of said rotary member; and

 a finishing device transversely supported from said frame rearwardly of said rotary trench-forming member to brush said discharged soil into said aeration trenches.
2. The linear aeration apparatus of Claim 1 wherein said blades are mounted at transversely spaced stations such that the rotation of said rotary member forms an aeration trench at each said station.

3. The linear aeration apparatus of Claim 2 wherein each said transversely spaced station is offset circumferentially from each adjacent said station, thus forming said blades into spiral paths extending transversely along said rotary member.

4. The linear aeration apparatus of Claim 1 wherein said finishing device is formed with a plurality of rearwardly extending finger members positioned parallel to and adjacent the ground.

5. The linear aeration apparatus of Claim 4 wherein said finishing device is reciprocated transversely to brush soil and top dressing material into said aeration trenches.

6. The linear aeration apparatus of Claim 5 wherein said finishing device is pivotally connected to said frame and operatively connected to a reciprocating drive mechanism.

7. The linear aeration apparatus of Claim 1 wherein said reciprocating drive mechanism includes a hydraulically driven motor driving an eccentric driver operatively connected through a linkage to said finishing device to effect transverse reciprocation thereof.

8. A method of aerating an area of turf comprising the steps of:
first, applying a top dressing material to the surface of the area of turf to be aerated;
then, creating a series of linearly extending aeration trenches having islands of soil therebetween;
discharging native soil expelled from said aeration trenches to the ground;
and
stabilizing said islands of soil by brushing soil and top dressing material into said aeration trenches.
9. The method of aerating of Claim 8 further comprising the step of:
mixing said native soil and said top dressing material for brushing into said aeration trenches.
10. The method of aerating of Claim 9 further comprising the step of:
providing a linear aerating apparatus for creating said linear aerating trenches, said linear aerating apparatus including a trench-forming member that rotates to move soil and top dressing material displaced from said aeration trenches over top of said trench-forming member to effect said mixing step.

11. The method of aerating of Claim 10 wherein said linear aeration machine includes a finishing device that is operable to mix said native soil and top dressing material displaced from said aeration trenches with said top dressing material already located on the surface of the ground and to brush the mixed native soil and top dressing material into said aeration trenches.

12. The method of aerating of Claim 11 wherein said mixing and brushing steps are accomplished by the step of:

transversely reciprocating said finishing apparatus over the surface of the ground.

13. The method of aerating of Claim 12 wherein said top dressing material comprises one or more of calcined clay, sand and compost.

14. The method of aerating of Claim 13 wherein said aerating trenches have a depth approximately equal to a corresponding transverse width of the adjacent island of soil measured generally perpendicularly to said aerating trench.

15. A method of aerating an athletic field comprising the steps of:
applying a layer of top dressing material to the surface of said athletic field;
rotating a rotary trench-forming member having radially extending blades to form a series of generally linearly extending aeration trenches having islands of soil between adjacent aeration trenches;
mixing said top dressing material with soil expelled from said aeration trenches; and
brushing soil and top dressing material into said aeration trenches to stabilize the islands of soil between adjacent said aeration trenches.

16. The method of aerating of Claim 15 wherein said mixing step includes the step of:
discharging said material expelled from said aeration trenches over top of said rotary trench-forming member to be deposited on the ground rearwardly of said rotary trench-forming member to be mixed further with said top dressing material on said islands of soil.

17. The method of aerating of Claim 16 wherein the blades on said rotating trench-forming member form said aeration trenches to a depth approximately equal to a corresponding width of said adjacent island of soil.

18. The method of aerating of Claim 16 wherein said brushing step includes the step of transversely reciprocating a finishing device having a series of transversely spaced fingers positioned adjacent the surface of the ground.

19. The method of aerating of Claim 18 further comprising the step of:
restraining the surface of the ground with presser feet engaging the ground adjacent the movement of said blades through the soil to create said aeration trenches.

20. The method of aerating of Claim 17 further comprising the step of:
providing a linear aeration apparatus having a frame rotatably supporting said rotary trench-forming member and support said finishing device for transverse reciprocating movement rearwardly of said rotary trench-forming member.